

# Science, Communities and Sustainable Management: Case of Kabani River Management in Wayanad

Neeraja K.S\*

**Abstract:** The sustainable development discourse generally claims itself as a scientific management of ‘resources’. It always speaks through the concepts like local communities, traditional knowledge, collective action, etc. But, it hardly discusses the discontents within and between different local institutions as well as communities regarding the existing management practices over the life supporting systems like river, forest, etc. It is essential to consider the existing hierarchies within a community for a fair distribution of rights over the life supporting systems. Otherwise, the management efforts may strengthen the existing hierarchies in a society. Therefore, this paper intends to explore the different interventions in the river in a small village in Wayanad, Kerala and the implications over the life of different Adivasi communities who directly depend on the river for their cultural and physical means. This paper draws its observations based on an ethnographic case study conducted in a village in Wayanad. The study village is known for its rich forests, mountains, rivers, wild life and diverse human communities including Hindu, Christian, Muslim as well as six different Adivasi communities. There are different tags that are added synonym with a river such as common property resource, river ecosystem, watershed, river basin etc. All these concepts developed in connection with different management efforts. This paper concludes that the sustainable development tools need to be developed in a way that can primarily recognise the much marginalised sections of the community and the local politics of the existing management practices.

**Key words:** Science, Sustainable Management, Adivasi communities, Wayanad, Kabani River.

---

\* The author participated in the Professor Radha Kamal Mukerjee Young Social Scientist Award Contest held during the Conference: Science, Technology and Society at Indore Christian College, Indore on January 6-7, 2018.

## Introduction

The earlier natural philosophies after the emergence of the modernity has been named as science. The science earlier was conceptualised as free from all external forces and meant to eliminate then existed power but later in the history of science we could see how it itself developed as a major power centre in the everyday life of the people all around the globe. That age of reasoning was more concerned about changing the traditional world of superstition, empiricism and irrationality. Therefore, everything which is questioning science was represented as irrational or unscientific. The other side of this engagement as well as disengagement with the science in another way reflected in the later development in sociology itself. The science versus tradition has become a watershed in the earlier discourses around the environment and development for a long time and still it continues to remain like that.

The term, ‘sustainability’ has extensively been used in the environmental and developmental discourses since more than last two decades (Irwin, 1995 and Lele, 1991). It has widely endured many critiques from the time of its inception. Despite the perplexity of its foundation in a wide range of applied sciences, it has got a huge acceptance as a significant concept which has a potential in leading the conservation and development of the world together. The distinctive feature it put forward was the idea of the concern for the next generation which had got very less attention in the earlier discourses. This idea of the concern for the next generation too got unfolded within the critiques of sustainability in various ways (Our Common Future, 1987). In this paper, I am trying to conceptualise the term ‘sustainability’ and its association in constructing a new social reality over nature in the context of everyday life and marginalisation of the Adivasi communities. Here, I basically try to unfold the ways the term sustainability has historically been used as a scientific venture in addressing the management of the developmental and the environmental realities. Therefore, I am here trying to unpack the notion of ‘science’ intrinsically associated with sustainability itself as well as the process of sustainable management of life supporting systems here per se the river management in a village in Wayanad.

This paper is based on an ethnographic study conducted in a village in Wayanad, Kerala and I have critically reviewed the major works in the field of science and sustainability studies. The reflexive approach of qualitative research is used to analyse the cases that I am going to present here. The major conclusion this paper arrived at is about the situation of furthering the existing hierarchies in the context of introduction of the sustainable development tools as part of 'river basin management'.

### **Science and Sustainability**

This part will try to review some of the early works on the sustainable development discourses in India. There is always an urge for the minimal effect on the environment by the life of people especially during the post war period in the industrial societies. It was generally considered as a 'way back' to the traditional kind of living. But, it has got many critiques for its romanticised conceptualisation of traditional living which in some way considered the modernity and its influence in other social realms irrelevant. Another important turn in this world is that science has turned as a power which could transform the entire life of the people around the world and at the same time its modernisation projects excluded the women, the children, marginalised communities especially in the South (Harding, 2008). There were many discontents and critiques from all over the world started as a strong force against the science and its modernity projects in which the environmental movements feminist and marginalised people' movements were actively taking part. Therefore in this context, generally sustainability is considered as a concept which emerged out of the larger backdrop of the global concern over depleting environment where the science and the modern life are in call for of a self review.

But, there are other heuristics on the emergence of sustainable development at global level. The one argument is that it is a western project of extending science spanning the North and the other developing world. The other account sees the sustainability project as a way for expanding capitalism across the world which uses the idea of metaphysical nature of reality that put forward by the western science. The other significant interpretation on these debates is that, begetting of sustainable

development has largely been part of making science more kind of liberating force for active citizenship rather than deciding and controlling social order as it did in earlier (Irwin, 1995). Another significant turning point according to literature must be the ever prevailing dualism of Science versus Tradition that existed till the early half of twentieth century even though both have according to feminist discourses in some way accommodated the otherness of women, children and marginalised or indigenous communities. It is considered by the scientists according to Harding (2008) as a major obstruct in the propagation of science in the changing global political contexts.

Therefore, the new project of sustainability that has emerged in the early 1970s could be seen as a ploy meant to overcome the existing science versus tradition by urging the incorporation of the traditional knowledge in each and every field of social world. The characteristics of the sustainability by its proponents even suggest that it as a scientific move to overcome the science versus tradition which enabled them to give recognition of the tradition (Sayer and Campbell, 2004). The significant problem there lies is that they are obsessed with the scientific explanation of the world and found no problem with the science itself in defining the realities rather asserting the problem is with the technologies. Therefore, they come up with a new science which they claim as it can explain the reality and interfere well in the life of people which can lead to a sustainable world. So, it results in marginalisation of the peripheries of modernity.

### **Sustainable Development and River Management in India**

In addition to the global pressure on the gaining sustainable future in India, the sustainable development discourses in the global level has been wielded as a strong way by the civil society groups, political parties and various other groups to take up the consequences of the existing development. They considered it as a scientific solution<sup>1</sup> for problems of the prevailing developmental programmes. In addition to that, they regularly used the terms 'scientific management of resources' synonym with the sustainable management, 'simple techniques' as scientific techniques, usage of simple cheap material as a scientific effort. Therefore, their whole effort proclaimed that

science itself is not a problem rather the significant thing is that whether it is good or bad by defining science in a way pro-people science and against people science (Phadke, 1992). It in a way deemed the public understanding and acceptance of scientific reasoning to social development is only becomes a matter of concern rather the science itself in defining the social world (Irwin, 1995). In the Indian context concerning with the environmentalist and developmentalist views science has become an unchallengeable reality. The problems of this uncritical view of the very construction of science as an objective reality and its application to conserve and develop the world have been challenged by the feminist writings for long. The feminist critique on the modernity, its rationality and the science stress not only the individual prejudices but rather on the assumptions, practices, and cultures of institutions and on the prevailing philosophy of science. Here, point in this paper is that the new meanings and practices of the modernity both the scientists (modernity versus tradition) create some spectre on the *Adivasi* communities and the women which is seen as problematic.

The history of India's civilization is well rooted on its river banks. The traditional economy directly depended on the rivers for its water, worship and livelihoods and hence the debate on the water and river management has a long history in India<sup>2</sup>. Until 1980s the water development relied only on the water and soil conservation. Land was not part of any water management efforts. Till that period, the interventions like terracing of land everywhere irrespective of local specific conditions, drought relief measures, and construction of irrigation systems, dams for electricity, flood relief and agriculture were preferred over the sources of water (DeSouza 2010). After eighties, the post green revolution also became a cause to sustain the water intensive agricultural crops. It is only after that period the concept of integrated water and land management came into the arena of water development. Thus, it was under these pressures the government started watershed development projects in 1982<sup>3</sup>.

The idea of River basin management reached the mainstream debate only after the Ganges River Basin Authority was brought under the purview of the EPA (1986). Even then, the main hold of

watershed development programmes was with the Agriculture and Rural Development<sup>4</sup> department till 1990s. In 1991, this programme started to become a nationalised development programme under the agriculture department in the name of National watershed programmes for rain fed areas. After 1992, the local self government became the implementation agency<sup>5</sup> for this programme. Even then, the land was considered as the space to store water and construct various structures (Falkenmark et al.1985). The design of these institutions was such that they had a strong influence in shaping the interaction of people with the resource (Bromely, 1991 cited in Homann, 2005). Hence, it is obvious that there was no role for the people and their varied interests to do anything with these institutions. The National River Conservation Directorate<sup>6</sup> was also set up as part of institutionalization.

In 2001, there was some dialogue on establishing River Regulation Zones; however this had not been implemented yet. The National River Conservation Plan set up under the Ministry of Environment and Forests (MoEF) concentrates on pollution in rivers. The National Water Policy (2002) gives priority to the ecology of the river and the draft policy of 2012 has given second highest priority for the ecology of the river. However, all these policies tend to ignore the relationship between the ecosystem and the different communities and their claims and rights on the river. The top-down approach of river basin planning in India and its consequences to the existence of river in the form of privatisation, river linking plans, etc. has been put forward by many environmentalist groups but hardly very few questioned the concept-ualization of the river itself based on the scientific understanding and the followed management. Here, the voice of the local people is largely mute. Major problems that have come up as impact on the life around rivers in India include construction of dams, pollution, encroachment, basin degradation and exploitation of ground water in the basin. But, it is time to work on how the very conceptualization of a river and thus its different management efforts itself is enclosed within the purview of the science. It is clear that the scientific practice, meanings and institutions of the sustainable management of river has been started complete functioning in the everyday life of people in India since the middle of 1990s.

## Case of Kabani River and the Sustainable Management Practices in Wayanad

Kabani River in Wayanad and small streams associated with it has different meanings for different communities. Kabani River technically originates in the Wayanad in Kerala and flows into the Mysore district of Karnataka. It is one of the important tributary<sup>7</sup> of Cauvery River. In this study I am focusing on the Thirunelli village where the small river Bavali flows through and lives differently among different communities.

The total population in Thirunelli Grama Panchayath is 27,450. Among this 44 percent is Scheduled Tribes and 2 percent is Scheduled Caste people. There is a wide diversity of human population living along the river including *Adivasi* population and other migrated people. The major source of income of the people is agriculture, work in plantations, forest works, tourism related works and small scale businesses. The *Adivasi* communities<sup>8</sup> inhabiting in this Grama Panchayath are Ravula/Adiyar, Kaatunaikkar (also known as Then Kurumar who collects honey from the forest and depend forest for their livelihood), Urali Kurumbar, Kurichiyars, Malayarayar and Mullu Kurumar (both of these communities are very less in number). Among the non-*Adivasi* communities, the Edanadan Chetty community, different castes of Hindus, Muslims and Christians are living there. I am going to contextualise the science and sustainable development discourses under the long standing struggles *Adivasi* people have been engaged in Wayanad in their everyday life and the organised protests.

We will now go to the transcribed cases.

### Case One

The Cauvery cell in Kerala is specifically intervening in the river based on the water management measures. It could also create among the local state institutions that the identity of the river as inter-state river or Cauvery water. Since the Cauvery dispute and related conflicts lead to form the Cauvery cell, Cauvery circle and Cauvery division office in Kerala, the information on the projects or planning are also kept much undisclosed.

The Cauvery cell is not familiar with the local people in the area. But they are aware that often some officials come to do the measurement of the river.

“Few days back some people came here and did some measurement over the river but we don’t know who they were and why they measured the river for”<sup>9</sup>

The role the local people in the ‘River basin management’ play under this department is very clear from the words of the local farmer in Panavalli area. Therefore, the basin concept as a scientific term itself had problem and the management based on that could not any way consider differential experiences of the people living in the area. The motivation force behind the Cauvery cell is to utilise the water from Kerala part of river itself uncovered the reality of how the state policy measures ignored the ground reality of heterogeneous perceptions of communities living in the Grama Panchayath about the river.

### Case Two

“We had given some recommendations in the watershed management plan to plant the bamboo in river side rather constructing embankments. But nothing has been put to practice”

Here, the major intervention happening in the river area could not incorporate the needs and the knowledge of the local *Adivasi* communities and the local marginal farmer. But at the same time the voice of the upper caste individuals and the farmers are represented more in the decision-making process.

The participation of the local people in developing the resource map as part of the Jalanidhi project and other watershed projects implemented in the Panchayath was only nominal. It is clearly projected by the above statement of the Ravula/Adiya *Adivasi* old man in Thrissilery. In addition to that, the *Adivasi* men were called for the field visit with the other community men in the area to make the map since they have better knowledge on the origin of different streams. The *Adivasi* women were avoided from the field visits even though they also had the knowledge of the river. The other significant marginalisation happening through this process of watershed map

preparation was that the suggestions given by the *Adivasi* people were usually taken as irrational and emotional. The words of the Ravula man reveals the magnitude of effort he spent for the mapping walk and the denials constantly his words received in the whole planning of the river management.

The two stories on the local experiences of the people would show that how the scientific terms like resource, basin, watershed has increasingly entered into the everyday life of the local people even though they could not relate with their life and how this new practices and meanings help the local elites to get control over the river in that way. Therefore, here a kind of new social reality is created in the name science of river and the *Adivasi* communities that were already marginalised in the society became depended on the local upper-caste /elite people by participating in the local management of river.

### Conclusion

The science and the new scientific projects such as sustainable development nevertheless do not consider realities of the margins and if that happens they are considered as not real or as irrational. Therefore, the way the sustainable development as a scientific project understands, the world reality and the active intervention of it in the everyday life of the *Adivasi* communities; women and children usually is very problematic since it enhances the burden over them leading them more into the periphery of the modernity. It has become a preconceived notion that science can do well and its applications in different political contexts are the only thing which result in danger for the humanity. The good science concept is anyway problematic since it could not critically look at how the science itself works. This also indirectly proposes that only science can give a way forward for the future. But, the present lives and position taken by science matters significantly in this world of different kinds of oppression. There is a strong need to go beyond the good and bad science rather accepting the presence of multiple realities since in every moment the debate on different kinds of science develops new social realities in the everyday life of the already marginalised communities which in turn despondent their life.

### Notes

- <sup>1</sup> See for example the slogans used by the Vidyan Yatra conducted in the selected villages in the banks of Krishna River by one left collective in Sangli District during early 1990s such as “we want scientific use of resources, break monopoly over resources” etc.
- <sup>2</sup> See Bhat (2010), Natural resources conservation law, pp. 93 says that the ancient history of India shows that there was well organised water pricing systems in 400 BC and other interventions on the rivers. Even it is only one part of the management of river and its water ever, the life of people had developed some system to manage the river.
- <sup>3</sup> The management of river in the past centuries looked water separately from the land. In late 1980s attempts were made to integrate the land and water management. The river basin concept has come later. But, the conception of development also made the developing countries to go on with the one sided management by dealing river basin as an area to develop water resources, flow control operation systems, irrigation, etc. (Falkenmark, et al. 1985).
- <sup>4</sup> The wasteland development programme of the Ministry of Environment and Forests in 1988-89 became the watershed programme under rural development department. There was also a larger campaign at the international level which considered that the poor are in pressure of poverty and it will lead to the degradation of local environment. This might also be a reason for the rural development ministry to take up the watershed projects. For clarifications see Biswas, 1990.
- <sup>5</sup> *Hariyali* guidelines of the ministry of rural development in 2003 made the Panchayath the implementing agency since it had taken only a supervisory role till that time.
- <sup>6</sup> Now it is known as National River Conservation Authority.
- <sup>7</sup> Tributary is a small stream which finally joins with a river. Since Bavali River finally confluence with Kabani and joins in it, Bavali becomes a tributary of Kabani.
- <sup>8</sup> Among the *Adivasi* communities in Thirunelli, Paniyar, Ravulas/ Adiyar, then Kurumar and Urali Kurumar were found as the most disadvantaged communities. For more details see the inspection report of Government of Kerala on NREGP 2009. Report of the world commission on environment and development: Our Common Future (1987). (Online) Available: [www.un-documents.net/our-common-future.pdf](http://www.un-documents.net/our-common-future.pdf) [Accessed 4th Dec. 2017] Sayer, J., and Campbell, B. (2004). *The Science of Sustainable Development- Local Livelihoods and the Global Environments*. New York: Cambridge University Press.
- <sup>9</sup> As told by a marginal farmer in Panavalli area on 23<sup>rd</sup> April 2014.

## References

- Biswas, Asit K. (1990). 'Watershed Management,' *International Journal of Water Resources Development*, 6: 4240-249.
- Creswell, John.W. (2007). *Qualitative Inquiry and Research Design; Choosing Among Five Approaches*, Second Edition. New Delhi, India: Sage Publications.
- DeSouza, Arun. (2010). *Water and Development Forging Green Communities for Watersheds*. New Delhi: Orient Blackswan Private Limited.
- Falkenmark, Malin. (2007). 'Heading towards Basin-Level Hydrosolidarity Goal for Land/Water/Ecosystem Coordination,' water and the environment' (Online) Available: [www.pas.va/content/dam/accademia/pdf/sv108/sv108-falkenmark.pdf](http://www.pas.va/content/dam/accademia/pdf/sv108/sv108-falkenmark.pdf) Accessed on February 4, 2015.
- Harding, S. (2008). *Sciences From Below-Feminisms, Postcolonialities and Modernities*. Durham and London: Duke University Press.
- Homann, Sabine. (2005). *Indigenous Knowledge of Borana Pastoralists in Natural Resource Management: A Case Study from Southern Ethiopia*. Gottingen: Cuvillier Verlag.
- Irwin, A. (1995). *Citizen Science-A Study of People, Expertise and Sustainable Development*. London: Routledge.
- Kothari, A. (2013). Development and Ecological Sustainability in India-Possibilities for the Post-2015 Framework. *Economic and Political Weekly*, 18 (30).
- Lele, S. M. (1991). Sustainable Development: A Critical Review. *World Development*, 19 (6), 607-621.
- Phadke, A. R. (1992). Science and Sustainable Development. *Economic and Political Weekly*, 27(45): 2411-2413.
- Redclift, M. (2005). Sustainable Development (1987-2005)- An Oxymoron comes of Age. *Sustainable Development* (13), 212-227.
- Report of the world commission on environment and development: Our Common Future (1987). (Online) Available: [www.un-documents.net/our-common-future.pdf](http://www.un-documents.net/our-common-future.pdf) Accessed on December 4, 2017.
- Sayer, J., & Campbell, B. (2004). *The Science of Sustainable Development-Local Livelihoods and the Global Environments*. New York: Cambridge University Press.

---

**Author: Neeraja K.S.** is a Ph.D. Scholar, School of Social Work, Tata Institute of Social Sciences, Mumbai - 400 088. E-mail: [neeraja.sukumaran2013@tiss.edu](mailto:neeraja.sukumaran2013@tiss.edu)

---